may disclose the step of preparing a die formed with a heat insulation layer at inside walls of a cavity as recited in claim 1, JP '645 fails to disclose the remaining steps of claim 1 (the filling and allowing steps along with the closing step, as admitted on page 2 of the Office Action). JP '645 simply coats a die.

As admitted on page 2 of the Office Action, JP '859 also fails to disclose the closing step of claim 1. JP '859 also fails to suggest the closing step because JP '859 teaches away from closing its die. JP '859 discloses preventing the generation of a cold shut in a casting by (1) controlling the content of Si in a molten spheroidal graphite cast iron, (2) controlling a thickness of the mold coat on the inside surface of the die, and (3) controlling the rate in which the molten cast iron is placed into the die (Abstract). JP '859 thus attempts to rapidly cool the molten cast iron that is placed in a die and thus teaches away from maintaining a temperature or preventing the rapid cooling of the molten cast iron by closing the die.

During the personal interview, Examiner Lin argued that it does not matter what the cooling rate is in JP '859 and thus JP '859 does not teach away from closing the die. This assertion is not correct because JP '859 explicitly states that rapid cooling is a concern. It is arbitrary and incorrect for the Examiner to assume that cooling rate is not a concern when JP '859 explicitly discloses the opposite.

Because JP '859 teaches away from closing the die, JP '859 fails to suggest allowing molten metal to solidify by the action of inside pressure caused by crystallization of the speroidal graphite in a sealed cavity as recited in claim 1, or the resulting advantages.

As discussed above, JP '645 and JP '859 fail to disclose all of the features recited in claim 1. JP '645 and JP '859 also fail to provide any suggestion or motivation to use the closing or allowing steps of claim 1. It thus would not have been obvious to one of ordinary skill in the art to use a closing step or an allowing step in view of another reference (including JP '455) based on JP '645 or JP '859.

Furthermore, JP '455 fails to provide any disclosure or suggestion with regard to using its process in JP '645 or JP '859. JP '455 discloses a pressure casting method that mechanically forces the pressurizing part 4 of a molten metal after the formation of a shell in a cavity part 2 of a casting mold 1. The casting mold 1 is formed of a green sand mold. After the cavity part 2 and the pressurizing part 4 of the casting mold 1 are filled, the charging is stopped to solidify a plate gate 7 and to hermetically close the molten metal in the casting mold 1. A thin shell is subsequently formed around the mold 1 and external forces are applied by a pressing means 6 in order to mechanically force the pressurizing part 4.

JP '455 only discloses using the pressing means 6 (in order to mechanically force the pressurizing part 4) with a green sand mold. JP '455 fails to provide any disclosure or suggestion with regard to using the pressing means 6 with a die formed with a heat insulating layer. The object of JP '455 is to mechanically force the pressurizing part 4 of molten metal in a green sand mold using a pressing means 6 in order to prevent shrinkage JP '455 fails to provide any disclosure or suggestion as to whether the problems presented in JP '455 exist in a die formed with a heat insulating layer or whether a pressing means 6 would be used with a die formed with a heat insulating layer. In other words, JP '455 fails to provide any suggestion or motivation to close a mold and to apply pressure using a pressing means in a structure specific to JP '645 or JP '859.

As discussed above and during the personal interview, it is arbitrary and incorrect for the Examiner to assume that JP '645 and JP '859 would close a mold when JP '455 discloses structure that suffers problems not identified by JP '645 or JP '859 or suffered by JP '645 or JP '859. The problems presented by JP '645 and JP '859 are not the same as the problems presented in JP '455. One skilled in the art would not look to JP '455 in order to add additional features, especially when JP '645 and JP '859 attempt to solve different problems.

In view of the foregoing, none of JP '645, JP '859 or JP '455 disclose or suggest a method of die-casting with the combination of steps as recited in claim 1. It is respectfully requested the rejections be withdrawn.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

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